REMARKS/ARGUMENTS

This is in response to the Office Action dated January 27, 2009. Claims 1-16 are pending. Claims 1-12 stand rejected in the outstanding Office Action. Claims 13-15 were presented in the Preliminary Amendment filed February 8, 2007. Claims 1, 3-4, 6-8, 11, 13 and 15 have been editorially amended. New claim 16 (corresponding to claim 3) has been added.

Applicant thanks the Examiner for the consideration of the Information Disclosure Statements filed April 8, 2004 and July 23, 2007.

Applicant thanks the Examiner for the acknowledgment of Applicant's claim for foreign priority and the receipt of a certified copy of the priority document.

The rejection of claim 1 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Numaoka (US 2001/0038386) in view of Kaji (US 6,501,568) and Minoru (JP 2000-202162) is respectfully traversed.

Numaoka/Kaji/Minoru fails to teach or suggest "determining a barycenter of the objects based on the weighted value and the positions of the objects; and generating a display image in which the barycenter lies in approximately a center of the display image", as required by claim 1.

Numaoka discloses a mobile data apparatus, e.g., a mobile data assistant 100 (Fig. 3), comprising a CCD camera 1 for picturing the background of an image display unit 13, which is a liquid crystal display device displaying an image of visual information (Fig. 1, [0021], [0035]). The mobile data apparatus performs the following actions: first, as the body equipped with the image display unit 13 is moved, frames taken by the CCD camera are saved and stored in buffers 2 and 3. Successive frames are stored and compared. A frame difference detector 4 calculates a change in the image between two successive frames. This change is used by a barycenter calculator 5 to calculate the barycenter of the change. Subsequently, a virtual camera movement

- 8 -

calculator 8, based on the value of the barycenter, calculates the position of the virtual camera to control the point of view of the virtual camera 11. Finally, the virtual camera 11 acquires object data in the 3D space from the 3D object space database 12, and projects 3D objects on the 2D screen as seen in its view. A resultant 3D image is displayed on the LCD screen of the image display unit 13 (Fig. 2, [0022]-[0027]).

The Examiner asserted that Numaoka discloses storing positions of the objects in the virtual space (citing elements 6 and 7 in Fig. 1), and barycenter determination means for determining a barycenter of the objects based on the data and the positions of the objects (citing elements 5 and 8 in Fig. 1). The Examiner acknowledged that Numaoka fails to disclose "weights" of an object and that the barycenter lies in approximately a center of the display image. The Examiner then turned to Kaji and Minoru for the missing limitations.

Kaji discloses a stereoscopic display device, e.g., a head mount display (Fig. 1), where the lines of sight in computer graphics are adjusted according to particular characteristics of the characters (col. 3, line 63 to col. 4, line 9). More specifically, each object (appearing on the screen seen by the user) to which the left and right human eyes will pay attention to is assigned an "attention" parameter. For example, an object that is closer to the user receives a higher degree of attention than an object that is farther away; a moving object receives a higher degree of attention than an object that is stopped, etc. (col. 4, lines 11-31). Each object shown on the screen worn by the user is assigned attribute data composed of the attention degree, position coordinates and polygon data, in addition to view point data, including view point position, line of sight directions, and viewing angle (perspective), Fig. 2, col. 5, lines 5-17. The distance between each object and the view point 48 (value Z in coordinate axis Z) is determined. In addition, the moving speed of each object and whether the object is approaching is determined.

Then an attention target is determined by calculating the comprehensive attention degree for each object based on the above factors (col. 5, lines 44-66). Finally, the lines of sight for both eyes are directed to a point corresponding to the value Z of the attention target object on the center line between the left and right eyes, and computer graphic images are created based on these line of sight directions and are displayed on the head mount display (col. 6, line 1-13).

The Examiner asserted that "weight" is interpreted as "attention degree", that Kaji discloses a storing means for storing weights, and concluded that it would have been obvious to modify Numaoka's 3D game system with Kaji's "weights" of objects in a 3D virtual space "to determine a level of focus on a particular object so that the particular object can be displayed correctly within the 3D space among other objects to create a more realistic and balanced scene". Note, however, that there is no disclosure in Kaji of assigning a highest "attention degree" (the alleged "weight") to a player character, as required by dependent claim 3.

Finally, the Examiner cited Minoru for allegedly teaching that the barycenter lies in approximately a center of the display image.

Minoru discloses an image generating method for displaying a plurality of objects in a 3D space. More specifically, the method includes picking a representative point C for the various objects, setting a reference point P under the virtual game stage, setting the direction of the line of sight according to the line connecting the representative point C and the reference point P, and setting the height of the virtual camera based on the distance of the farthest object from the representative point (Fig. 1, Abstract). Minoru teaches that the center of gravity point M may be used as a representation point ([0042]), and the Examiner stated that "it is obvious that the barycenter lies in the center of the image since, by definition, "barycenter" is the point between two objects where they balance each other, also barycenter relates to the center of gravity".

- 10 -

Unlike the Examiner's assertion, Numaoka fails to teach "determining a barycenter of the objects based on the weighted value and the positions of the objects", as required by claim 1. Instead, in Numaoka, the barycenter calculator calculates a barycenter based on a **change in the image between the two successive frames**. More specifically, paragraph [0024] states:

> The frame difference detector 4 calculates an optical flow between two consecutive frames from the saved data of the frame buffers 2 and 3 to detect a change in the image between the two frames. The change in the image is transferred to the barycenter calculator 5 where it is used to calculate the barycenter of the change which is then saved in the barycenter coordinates memory 6.

From the above, it is clear that Numaoka compares the images of two successive frames and calculates a barycenter representing a measure of the change in the images. Numaoka fails to teach or even remotely suggest looking at the positions of individual objects and calculating a barycenter based on the positions of the individual objects at each frame.

In addition, even though Kaji discloses assigning an "attention degree"/weight to each object, this is done for the purpose of adjusting the sight lines in a stereoscopic display device, e.g., a head mount display. This is completely different from Numaoka where the view point of a virtual camera dynamically responds to the movement of the mobile set equipped with a display. In other words, one of ordinary skill in the art would not have looked into Kaji to modify the stabilization method of Numaoka. Namaoka discloses calculating a change to the barycenter based solely on a change in image between two frames. In particular, Numaoka discloses a frame difference calculator 4 for calculating an optical flow between the two successive frames. Even if objects in an image is Numaoka's system were assigned attention degrees as in Kaji, this newly added data would be meaningless to the frame difference calculator, which only calculates optical flow. That is, Namaoka's frame difference calculator

4 would not know how to interpret the newly added attention degree data since it merely determines optical flow.

Moreover, the Examiner has not explained how to modify Numaoka using the weights taught by Kaji, and more specifically, the Examiner has not indicated how to use the weights of individual objects to calculate the barycenter based on the change in the image between two successive frames.

Finally, even though a barycenter can be defined as a balance point among a plurality of objects, Numaoka/Kaji/Minoru provides no teaching or suggestion that the display image is created such that the barycenter lies in approximately a center of the display image. The barycenter of a plurality of objects may be located at the balance point of the objects, but still not located at the center of the display image.

Minoru fails to cure the deficiencies of Numaoka/Kaji.

For the above reasons, claim 1 is allowable. Claims 12 and 13 include limitations similar to those of claim 1 and are also allowable.

It is respectfully requested that the rejection of claims 2-11 and 14-16, all dependent from independent claim 1 or 13, also be withdrawn.

In view of the foregoing and other considerations, all claims are deemed in condition for allowance. A formal indication of allowability is earnestly solicited.

The Commissioner is authorized to charge the undersigned's deposit account #14-1140 in whatever amount is necessary for entry of these papers and the continued pendency of the captioned application.

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Should the Examiner feel that an interview with the undersigned would facilitate

allowance of this application, the Examiner is encouraged to contact the undersigned.

Respectfully submitted,

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